

Neue und interessante Milben
aus dem Genfer Museum XXXIV.¹
A compendium of the Oribatid (Acari)
fauna of Mauritius,
Reunion and the Seychelles Is. II.

by

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ABSTRACT

New and interesting mites from the Geneva Museum XXXIV. — Eleven soil samples from Mauritius, Reunion and Seychelles Islands have been examined and the Oribatid material studied. Systematic data given here for 34 species of which 22 are new to science. In one case the erection of a new genus appears justifiable (*Flagellobates* gen. n.).

An extremely valuable mite material has been accumulated during the past years through the arduous collecting activity of Dr. B. Hauser, custos, in the Museum d'Histoire naturelle, Geneva. This valuable collection was further enriched by the extensive collecting of Dr. P. Schauenberg while staying in Mauritius, Reunion and the Seychelles Is.² The arthropod material was extracted partly by the Moczarski-Winkler method and partly by Berlese apparatus from samples of soil, litter, moss, etc.

The identification of the mites is time consuming, thus papers will be published from time to time concerning this material. (Mahunka, 1978). On the present occasion I discuss 34 species of which 22 are new to science. One species required the erection of a new genus.

On this occasion I should like to thank most sincerely Dr. P. Schauenberg for collecting the material and Dr. B. Hauser for allowing me to study it.

¹ XX. Contribution to the Oribatid Fauna of S.E. Asia (Acari, Oribatida). (*Revue suisse Zool.* 84: 247-274, 1977).

² This joint Botanical-Zoological Mission, 14.XII.1974 till 1.II.1975, has been financially supported by the Bourse Fédérale pour Voyages de la Société helvétique des Sciences naturelles.

LIST OF LOCALITIES

Reunion

Mau-75/18: LA REUNION: Mare-Longue, (près St. Philippe), forêt primitive, alt. 580 m., 15.I.1975.

Mauritius

- | | |
|---------------------|---|
| Mau-75/2 : MAURICE: | Mt. Le Pouce, couche superficielle, forêt primaire endémique, alt. 780 m., 20.XII.1974. |
| Mau-75/6 : MAURICE: | Ile Ronde, lit de torrent sec, sous litière de feuilles de <i>Pandanus</i> , 29.XII.1974. |
| Mau-75/7 : MAURICE: | Au fond de la gorge de la Rivière Noire, sous un tronc pourri, forêt endémique primitive, alt. 80 m., 1.I.1975. |
| Mau-75/35: MAURICE: | Mt. Le Pouce, alt. env. 700 m., 20.XII.1974. |
| Mau-75/41: MAURICE: | Morne du Lion, alt. 400 m., 25.XII.1974. |
| Mau-75/43: MAURICE: | Grande Mare, près de Pétrin, alt. 650 m., 26.XII.1974. |
| Mau-75/46: MAURICE: | Ile Ronde, 29.XII.1974. |
| Mau-75/50: MAURICE: | Gorge de la Rivière Noire, 1.I.1975. |
| Mau-75/69: MAURICE: | Mt. Le Pouce, alt. 810 m., 20.XII.1974. |

LIST OF THE IDENTIFIED SPECIES

Phthiracaridae Perty, 1841

- Hoplophthiracarus dactyloscopicus* sp. n.
Steganacarus cornutus sp. n.
Steganacarus tuberculosissimus sp. n.

Hypochthoniidae Berlese, 1910

- Eohypochthonius africanus* sp. n.
Malacoangelia remigera Berl., 1913

Locality: Mau-75/46

Eniochthoniidae Grandjean, 1947

- Hypochthoniella minutissima* (Berlese, 1904)

Locality: Mau-75/7

Lohmanniidae Berlese, 1916

- Annectacarus africanus* Balogh, 1961

Localities: Mau-75/6, Mau-75/46

Plateremaeidae Trägardh, 1931*Pedrocortesia humerata* sp. n.**Eutegaeidae** Balogh, 1965*Nodocepheus hammerae* Balogh, 1961

Locality: Mau-75/18

Microzetidae Grandjean, 1936*Microzetes auxiliaris* Grandjean, 1936

Locality: Mau-75/46

Basilobelbidae Balogh, 1961*Basilobelba retiarius* (Warburton, 1912)

Locality: Mau-75/46

Astegistidae Balogh, 1961*Cultroribula bicuspidata* sp. n.**Carabodidae** C. L. Koch, 1837*Machadocepheus foveolatus* sp. n.*Machadocepheus longus* Balogh, 1962

Locality: Mau-75/43

Otocepheidae Balogh, 1961*Clavazetes tuberculatus* sp. n.*Nesotocepheus clavigerus* sp. n.**Opiidae** Grandjean, 1954*Opiella nova* (Oudemans, 1902)

Locality: Mau-75/2

Striatoppia opuntiseta Balogh et Mahunka, 1968

Locality: Mau-75/6

Cymbaeremeidae Sellnick, 1928*Scapheremaeus clavisetus* sp. n.*Scapheremaeus quadrilineatus* sp. n.

Oribatulidae Thor, 1929*Zygoribatula heterotricha* Mahunka, 1970

Locality: Mau-75/6

Zygoribatula schauenbergi sp. n.**Haplozetidae Grandjean, 1936***Flagellobates berndhauseri* sp. n.*Tribates cryptus* sp. n.**Mochlozetidae Grandjean, 1960***Rykella insignis* Balogh, 1962

Locality: Mau-75/41

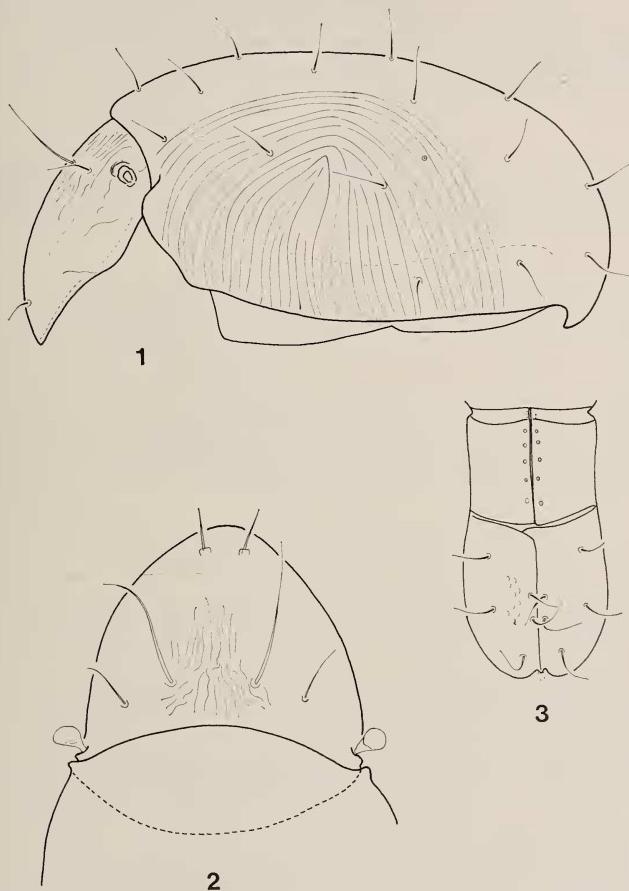
Pelopidae Ewing, 1917*Eupelops incompletus* sp. n.**Galumnidae Piffl., 1970***Porogalumnella africana* sp. n.**Galumnidae Jacot, 1925***Allogalumna triangulata* sp. n.*Galumna costata* sp. n.*Galumna flabellifera* Hammer, 1958

Localities: Mau-75/6, Mau-75/46, Mau-75/50

Galumna mauritii sp. s.*Pergalumna filifera* sp. n.*Pergalumna mauritii* sp. n.*Pergalumna strigulata* sp. n.**DESCRIPTION OF THE NEW SPECIES*****Hoplothiracarus dactyloscopicus* sp. n.**

Measurements: Length of aspis: 174-198 μ , length of notogaster: 323-396 μ , height of notogaster: 188-212 μ .

Prodorsum (Fig. 2): Broadly rounded, narrow in lateral view. Surface covered mainly with irregular creases, which pass around lamellar hairs, then run parallel in direction of rostral hairs. Latter, straight, rigid and short. Lamellar hairs extraordinarily long, arcuate, ciliate. Interlamellar hairs shorter. Sensillus quite short, but broad, clavate.



FIGS. 1-3.

Hoplophthiracarus dactyloscopicus sp. n.

1. lateral side; 2. aspis; 3. genital and anal plates.

Notogaster (Fig. 1): In dorsal view surface adorned with longitudinally running, parallel ribs, which laterally run arcuately around a "rotary" point, thus much resembling the dermatoglyph of a finger. 15 pairs of thin though comparatively long notogastral hairs present.

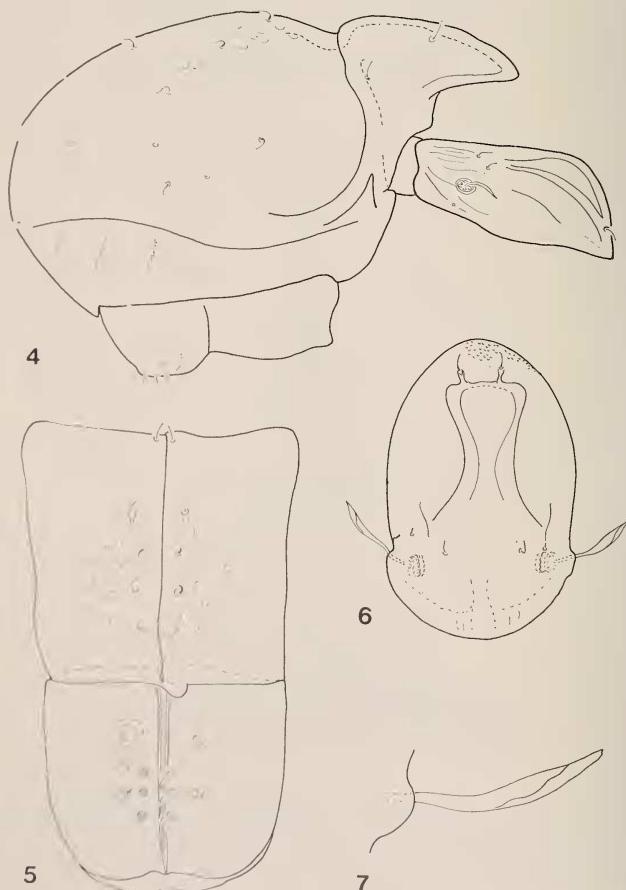
Ventral: Genital and anal plates (Fig. 3) adorned with large foveolae. 2 pairs of anal hairs set close behind one another on inner margin, 3 pairs of adanal hairs standing approximately same distance from one another but on margin of plate.

Material examined: Holotypus: Mau-75/2. 2 paratypes collected at the same locality. Holotypus and 1 paratype deposited in the Museum d'Histoire naturelle, Geneva. 1 paratype (56-PT-76) deposited in the Zoological Department of the Hungarian Natural History Museum, Budapest.

Remarks: A similarly sculptured species belonging in the family of **Phthiracaridae**, known as *H. zebra* Balogh, 1962, was collected in Madagascar. The anal hairs of the latter are distributed in a different fashion than those of the new species, while the sensillus of *zebra* is longer and thinner.

Steganacarus cornutus sp. n.

Measurements: Length of aspis: 283-326 μ , length of notogaster: 656-761 μ , height of notogaster: 356-408 μ .



Figs. 4-7.

Steganacarus cornutus sp. n.

4. lateral side; 5. genital and anal plates; 6. aspis; 7. sensillus.

Prodorsum (Fig. 6): Broadly rounded. Surface with two strong keels, arcuate doubly as an S reaching basis of rostral hair. Between rostral hairs a weaker chitinized line perceptible. All three prodorsal pairs of hairs minute. Rostral region adorned with densely spaced round foveolae, rest of surface with weak, large foveolae or creases. Sensillus (Fig. 7) elongated, lanceolate.

Notogaster (Fig. 4): Frontal part produced into a long process reaching above prodorsum, this part being sharply pointed, in dorsal view triangular in outline, in front somewhat rounded. 15 pairs of minute notogastral setae. Surface of notogaster with foveolae. Laterally adjoining the process a sharp chitinized margin present.

Ventral: Genital plate (Fig. 5) with sporadic large foveolae, anal plate with densely set, more contrasted, smaller foveolae. Both genital and anal hairs small. Inner margin of anal plate with 3 pairs of hairs, other 2 pairs, again in a common line standing somewhat more inward.

Material examined: Holotypus: Mau-75/41. 3 paratypes: with same locality data. Holotypus and 1 paratype deposited in the Museum d'Histoire naturelle, Geneva. 2 paratypes (57-PO-76) deposited in the Zoological Department of the Hungarian Natural History Museum, Budapest.

Remarks: This is another species related to *Steganacarus multituberculatus* Bal. et Mah., 1966. But the new species differs from the latter and the other related species by its more pointed notogastral process, by the shape of sensillus and by the hairs.

***Steganacarus tuberculosisimus* sp. n.**

Measurements: Length of aspis: 315-356 μ , length of notogaster: 792-961 μ , height of notogaster: 392-543 μ .

Prodorsum (Fig. 9): Angular in lateral view, rostrum less projecting. Surface covered with polygonal sculpture formed by chitinized ribs and foveolae of various sizes present, laterally in exobothridial region and in front of it, surface adorned with a weak polygonal sculpture. Rostral hair comparatively long, lamellar and interlamellar-one minute. Sensillus (Fig. 10) straight, scarcely thickened.

Notogaster (Fig. 8): Frontal part projecting well above aspis, gradually narrowing. Surface with high crests and humps, otherwise adorned with foveolae of various sizes (latter proceeding towards the back becoming larger, occasionally arranged into rows, sometimes admixed with creases). 15 pairs of thin, simple, arcuate hairs present.

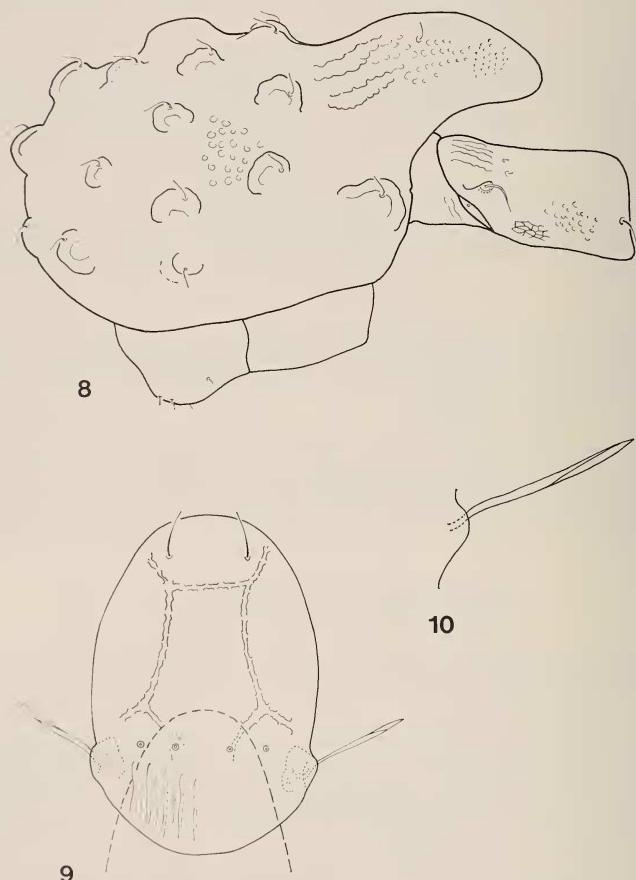
Ventral: Surface of anal and genital plates with coarse foveolate sculpture. 5 pairs of anal hairs minute, among foveolae only insertional points perceptible.

Legs: All legs with one claw, inner side of claws with two denticles.

Material examined: Holotypus: Mau-75/50. 12 paratypes: from the same locality. 3 paratypes: Mau-75/41. Holotypus and 9 (7+2) paratypes deposited in the Museum d'Histoire naturelle, Geneva. 6 (5+1) paratypes (58-POa-b-76) deposited in the Zoological Department of the Hungarian Natural History Museum, Budapest.

Remarks: This new species is also allied to *Steganacarus multituberculatus* Bal. et Mah., 1966. Owing to the very high tubercles of notogaster it stands closer to the

latter species than to the herewith described *St. multirugosus* sp. n., but the phylliform hairs and the differently shaped sensillus clearly separate the former species from the new one.



Figs. 8-10.

Steganacarus tuberculosissimus sp. n.

8. habitus from lateral side; 9. aspis; 10. sensillus.

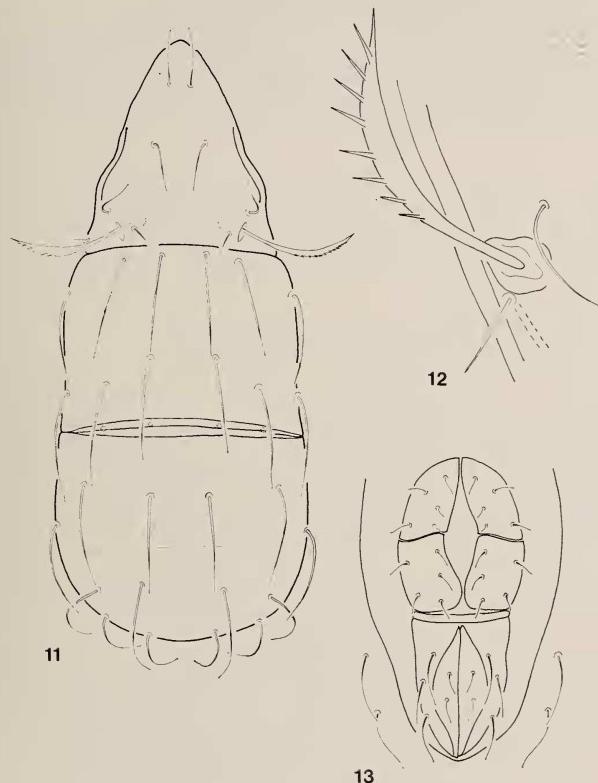
Echypochthonius africanus sp. n.

Measurements: Length: 252-260 μ , width: 103-111 μ .

Prodorsum (Fig. 11): Surface smooth, neither chitinized crest nor other projections present. Hairs simple, smooth. Rostral and lamellar hairs approximately of equal length, exobothridial ones shorter, but all three arcuate. Inteboothridial hair standing beside bothridium, straight, short. Sensillus (Fig. 12): strongly thickened, spindle-shaped, with 8-9 lateral branches, comb-like.

Notogaster: Surface evenly granulate. All hairs thin, excepting hairs ps all hairs of same length, hair c_1 slightly shorter than c_2 . Insertional points of hairs perceptible.

Ventral (Fig. 13): Identical with basic type of genus. Preanal plate well discernible: broad, ribbon-like. 10 pairs of genital, 2 pairs of anal and 3 pairs of adanal hairs thin, adanal ones especially long.



FIGS. 11-13.

Echypochthonius africanus sp. n.

11. dorsal side; 12. sensillus; 13. anogenital region.

Material examined: Holotype: Mau-75/46. 11 paratypes: from same locality as holotype. Holotype and 7 paratypes deposited in the Museum d'Histoire naturelle, Geneva. 4 paratypes (59-PO-76) deposited in the Zoological Department of the Hungarian Natural History Museum, Budapest.

Remarks: The genus *Echypochthonius* Jacot, 1938 so far included four¹ valid species. WALLWORK extensively studied *E. vilhenaorum* (Bal., 1958), described from the Ethiopian Region, together with other related species. The newly described species

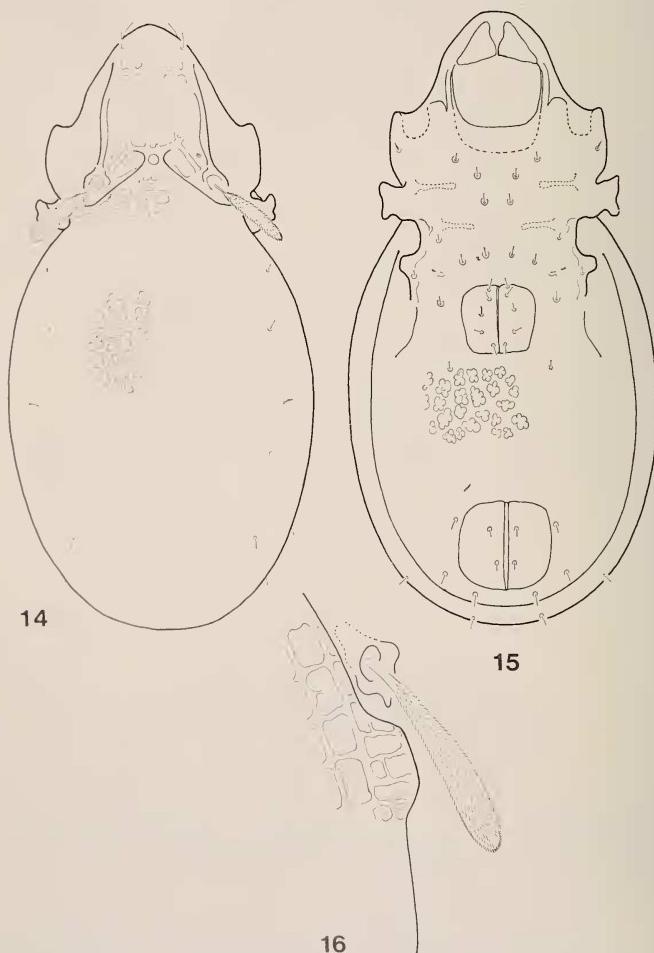
¹ I consider *E. crassisetos* to be a valid species.

differs from both the former species and from the other taxa described from the Oriental and Nearctic Regions by the thickened sensillus and by the much smaller body measurements.

Pedrocortesia humerata sp. n.

Measurements: Length: 197-216 μ , width: 109-116 μ .

Prodorsum (Fig. 14): Entire surface covered by a polygonal sculpture comprising creases, laterally a longitudinally running lath present, basally also a transversally running lath being stronger than the rest. Prodorsal hairs minute, scarcely distinguishable. Sensillus (Fig. 16) clavate, surface dense with tiny cilia.



FIGS. 14-16.

Pedrocortesia humerata sp. n.

14. dorsal side; 15. ventral side; 16. sensillus.

Notogaster: Laterally a well perceptible, comparatively strong shoulder plate present. Entire surface adorned with polygonal sculpture, each consisting of 3-8 smaller, weakly delimited alveoli. Notogastral setae small, owing to sculpture difficult to perceive. Pori *ia* and *ip* not perceptible.

Ventral (Fig. 15): Entire body surface covered with polygonal sculpture. Epimeral hairs with chitinized ring at base, thus well perceptible. 5 pairs of genital, 1 pair of aggenital, 2 pairs of anal and 3 (?) pairs of adanal hairs present. Pori *iad* in preanal position.

Material examined: Holotypus: Mau-75/6. 1 paratype: from same locality. Holotypus deposited in the Museum d'Histoire naturelle, Geneva. Paratype (60-PO-76) deposited in the Zoological Department of the Hungarian Natural History Museum, Budapest.

Remarks: A very similar species has been described recently from Korea: *Pedrocortesia sculpturata* Aoki, 1974. The latter species however, has 6 genital hairs, club of sensillus coarser, cilia larger and shoulder plate absent. The new species differs from other species of *Pedrocortesia* Hammer, 1958 (*Pedrocortesella* Hammer, 1961) by its striking sculpture pattern.

Cultroribula bicuspidata sp. n.

Measurements: Length: 228-233 μ , width: 151-158 μ .

Prodorsum (Fig. 17): Rostrum deeply incised, thus bicuspidate. Lamellae large, broad, ending far from rostrum. Cuspis long, approximately half as long as the distance of lamellar base from bothridium. Lamellar hairs robust, rostral ones thinner, shorter, interlamellar ones shortest of all. Stalk of sensillus extremely long, arcuate, club shaped like a plum-stone.

Notogaster: Shoulder plate well developed. Hair *ta* originating on it much longer than any notogastral hair, latter hairs simple, thin.

Ventral (Fig. 18): Longitudinal sternal apodeme absent, transversal apodemes well developed. Epimeral region with weak polygonal sculpture. Pedotecta 4, bicuspidate. Genital hair short. Anal and genital plates large, almost reaching each other. 5 pairs of genital, 1 pair of aggenital, 2 pairs of anal and 3 pairs of adanal hairs present.

Legs: All legs bearing one claw only.

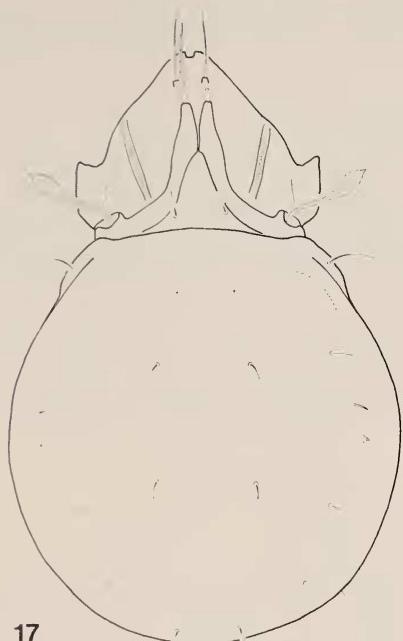
Material examined: Holotypus: Mau-75/50. 12 paratypes: from same locality. Holotypus and 7 paratypes deposited in the Museum d'Histoire naturelle, Geneva. 5 paratypes (61-PO-76) deposited in Zoological Department of the Hungarian Natural History Museum, Budapest.

Remarks: The new species is close to *C. humerata* Bal. et Mah., 1966 described from Zaire (Brazzaville Congo), but differs from it by its bicuspidate rostrum, shorter lamellar cuspis, and by the shorter interlamellar hairs.

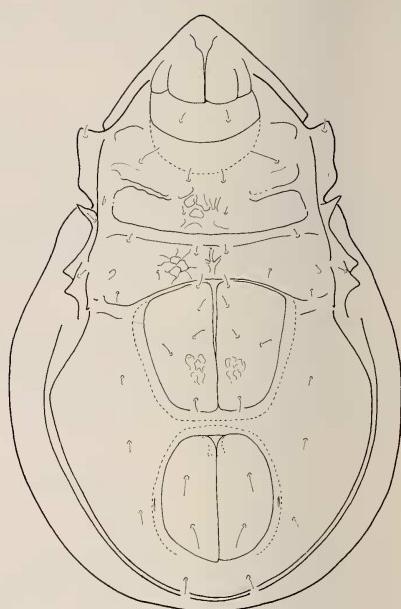
Machadocephus foveolatus sp. n.

Measurements: Length: 648-826 μ , width: 404-553 μ .

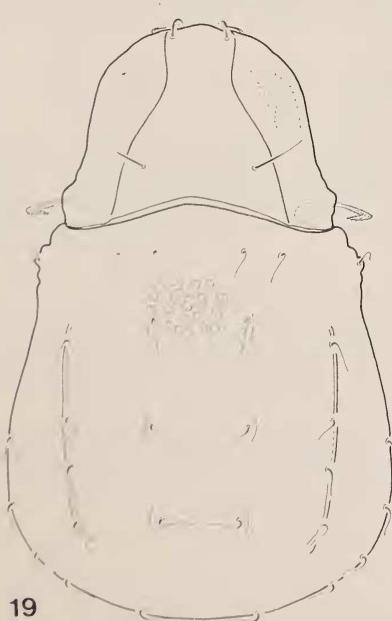
Prodorsum (Fig. 19): Rostrum broad, rounded. Lamellae also broad, surface with weak polygonal sculpture. Rostral and lamellar hairs short. Interlamellar ones much longer but thinner than latter. Sensillus setiform, strongly recurved.



17



18



19



20

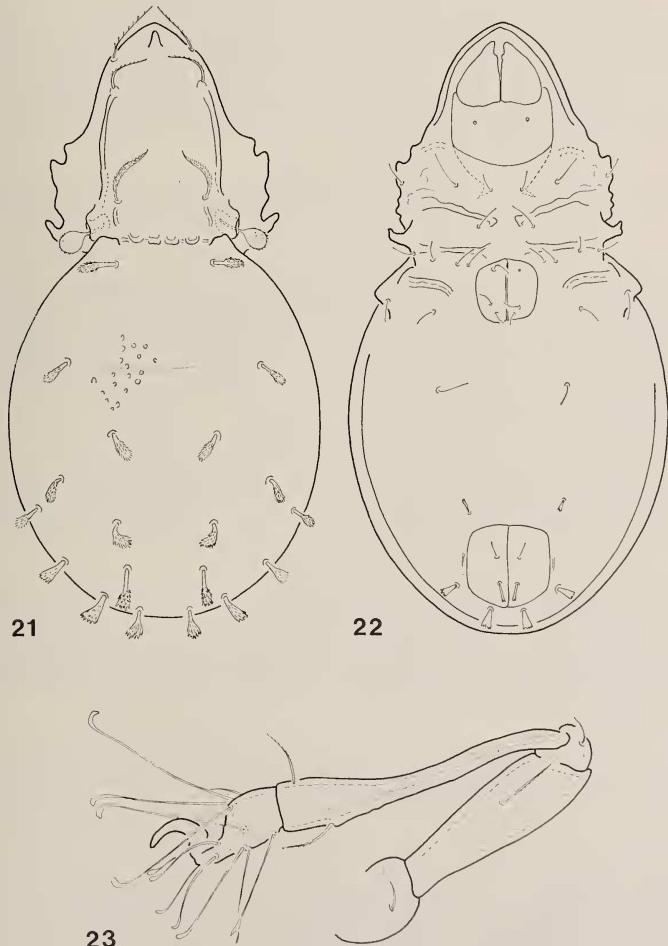
FIGS. 17-20.

Cultroribula bicuspidata sp. n. — 17. dorsal side; 18. ventral side.
Machadocephalus foveolatus sp. n. — 19. dorsal side; 20. lateral side.

Notogaster (Fig. 20): Posteriorly strongly widening. Surface with a long lateral lath and 3 pairs of weaker ribs perceptible, scarcely protruding from surface. 15 pairs of very thin hairs present, distributed as characteristic for genus.

Ventral: Heavily chitinized anogenital region divided by strong laths. Between anal and genital openings 4-5 longitudinal ribs present. Epimeral hairs thin, comparatively long. Epimeral setal formula: 1-1-2-3. 4 pairs of genital, 1 pair of aggenital, 2 pairs of anal and 3 pairs of adanal hairs present. All being thin. Hair ad_3 removed far from genital opening, aligned with anterior margin of opening.

Material examined: Holotypus: Mau-75/46. 27 paratypes: collected at the same locality. Holotypus and 17 paratypes deposited in the Museum d'Histoire naturelle,



Figs. 21-23.

Clavazetes tuberculatus sp. n.

21. dorsal side; 22. ventral side; 23. leg IV.

Geneva. 10 paratypes (62-PO-76) deposited in the Zoological Department of the Hungarian Natural History Museum, Budapest.

Remarks: The new species differs from all other known *Machadocepheus* Bal., 1958 by the scarcely protruding central part of the notogaster, by the dorsosejugal depression, which is especially pronounced in middle. Its closest ally is *M. pauliani* Balogh, 1962, but the new species differs from latter by the distribution of notogastral hairs and by the lack of striae on the notogastral margin.

Clavazetes tuberculatus sp. n.

Measurements: Length: 436-471 μ , width: 202-224 μ .

Prodorsum (Fig. 21): Lamellar hairs on prodorsal margin set wide apart, ciliate. Lamellae narrow, end of lamellar hair with tuberculum, shorter than rostral hair. Sensillus short, club round, surface of latter finely aciculate. Interlamellar hair somewhat thickened, narrow phylliform, ciliate. Basal margin of notogaster with 2 pairs of condyles (*co. pm*), the lateral ones weakly developed.

Notogaster: In dorsosejugal region only lateral condyle *co. pl.* present. Surface with weak foveolae. 10 pairs of characteristically thickened ciliate hairs of various lengths.

Ventral (Fig. 22): Epimeral hairs thin, still well discernible. Hair *lb* especially long. Epimeral surface punctured. Colour of genital plate identical with that of ventral surface. 3 pairs of genital, 1 pair of aggenital hairs present, all thin, simple. Anal and adanal hairs more or less thickened, hairs *an₂* and *ad₃* rather stick-like, *an₁* slightly, *ad₂* but more especially *ad₁* broadly spatulate. Hair *ad₃* in preanal position. *iad* pori situate beside anal plate, parallel with it.

Material examined: Holotypus: Mau-75/18. 1 paratype: Mau-75/35. Holotype deposited in the Museum d'Histoire naturelle, Geneva. Paratype (63-PO-76) deposited in the Zoological Department of the Hungarian Natural History Museum, Budapest.

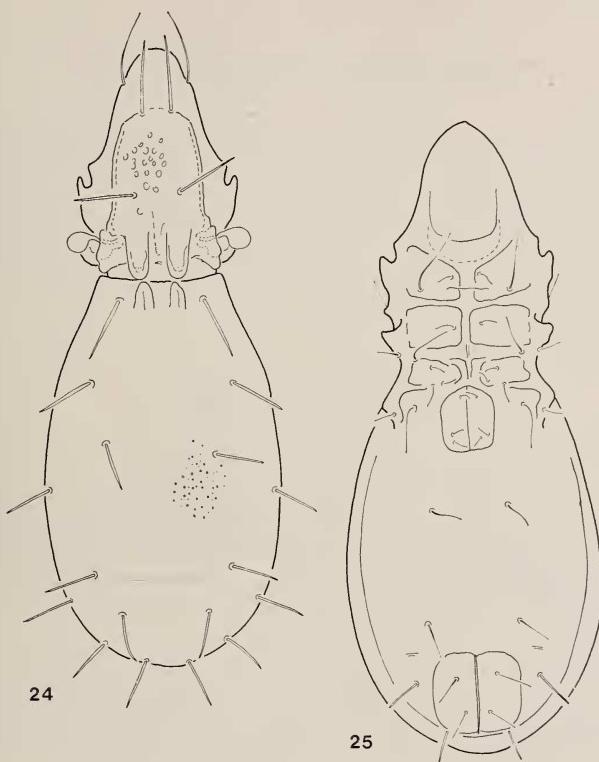
Remarks: The genus *Clavazetes* Hammer, 1966 and its only known species has been reported from New Zealand. The specimens from Reunion and Mauritius come quite close to the species from New Zealand, but the presence of prodorsal condyles, the arrangement of hairs *ad₃* on the anal plate and the position of *iad* pori may be used to separate *Cl. tuberculatus* from the former.

Nesotocepheus clavigerus sp. n.

Measurements: Length: 543-560 μ , width: 203-228 μ .

Prodorsum (Fig. 24): Rostrum broad, rounded, rostral hairs long, arcuate, attenuating towards apex. Lamellae thin, removed from each other, running close to lateral margin, at the end sharply curving inward. Robust, truncate lamellar hairs emitted here. Interlamellar hairs similar. Sensillus extremely short, but suddenly, very strongly widened into an asymmetrical club. Exobothridial hair minute. Surface with scattered small foveolae, interstices punctate. Basal part of prodorsum 2 pairs of condyles present, medial pair much stronger than lateral one.

Notogaster: Surface with scattered small foveolae, interstices punctate. Front margin with 2 pairs of condyles, inner pair much stronger. 10 pairs of thick, truncate notogastral hairs of various lengths present. Hairs *ta-te-ti* aligned almost in a longitudinal row. Hairs *ta* longest of all.



FIGS. 24-25.

Nesotocepeus clavigerus sp. n.

24. dorsal side; 25. ventral side.

Ventral (Fig. 25): Pedotectae 2-3 triangular. Among epimeral hairs *1b*, *3b* and *4b* longer than rest. Genital plate, darker than any other surface, with pairs of hairs. 1 pair of aggenital, 2 anal and 3 pairs of adanal hairs present. *Iad* pori and *ad₃* in preanal position, removed far from anal plates.

Materail examined: Holotypus: Mau-75/35. 4 paratypes: collected at the same locality; 1 paratype Mau-75/7; 4 paratypes Mau-75/41; 1 paratype: Mau-75/69. The holotypus and 6 (2+1+2+1) are deposited in the Museum d'Histoire naturelle, Geneva. 4 paratypes (2+2) (64-POa-b-76) deposited in the Zoological Department of the Hungarian Natural History Museum, Budapest.

Remarks: The genus *Nesotocepeus* was erected by HAMMER in 1972 on the basis of a species collected in Tahiti. Though the author did not give a differential diagnosis,

nor did he mention the alliance of the new taxon, the description indicates that his genus comes close to *Longocepheus* Bal. et Mah., 1966. Further study is needed to determine whether it is justified to have these two very similar genera. The new species may be separated from *Nesotocepheus setiger* Hammer, 1972 by its smooth notogastral hairs and by the preanal position (!) of *iad* pori.

Striatoppia opuntiseta Bal. et Mah., 1968

The species has been reported from several points of the Oriental and Pacific regions. HAMMER (1972: 29) compared the specimens originating from the various localities and observed some small differences between them. The specimens from Mauritius also differ slightly from the nominal form (notogastral lines long and adorned like a row of beads¹ as *S. margaritifera* Bal. et Mah., 1966), but the course of lamellae and the shape of notogastral hairs seem to be similar with *opuntiseta*, therefore, I deem it unnecessary to separate the two forms.

Locality: Mau-75/6.

Scapheremaeus clavisetus sp. n.

Measurements: Length: 395-446 μ , width: 267-302 μ .

Prodorsum (Fig. 26): Surface with heavy sculpture, in interlamellar region a transversal lath present emitting a forward projecting more or less conical protuberance, in front of latter a robust carina, then thinner lamellae and translamella perceptible. Only very small rostral hair perceptible. Stalk of sensillus very short, club huge with a wrinkled black surface.

Notogaster: Central surface adorned with heavy, irregularly running creases, in lateral view strongly convex. Margin with some weaker creases radially arranged pointing towards a centre. Shoulder angular, but without an elongate projection. 13 pairs of notogastral hairs, dorsally 10 pairs of black clavate hairs, surface of club creased, hairs *ps* ventrally emitted at margin, minute and thin.

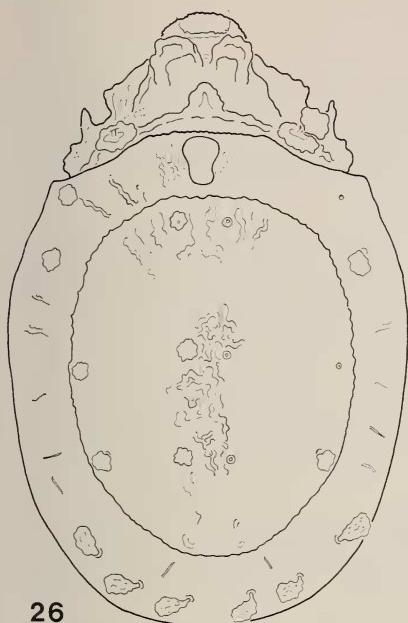
Coxisternal region (Fig. 27): Surface with weak, creased sculpture. Bases of hairs encircled with a chitinized ring. Epimeral setal formula: 3-1-2-2.

Anogenital region: Similar to coxisternal region but with a heavier sculpture consisting of creases. 4 pairs of genital, 1 pair of aggenital, 2 pairs of anal and 3 pairs of adanal hairs present. Latter three pairs in postanal position.

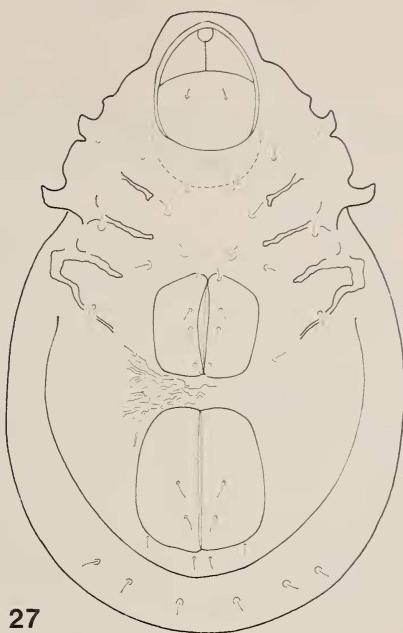
Material examined: Holotypus: Mau-75/6. 4 paratypes: from same locality; 10 paratypes: Mau-75/46. Holotypus and 9 (2+7) paratypes are deposited in the Museum d'Histoire naturelle, Geneva. 6 paratypes (2+4) paratypes (65-POa-b-76) deposited in the Zoological Department of the Hungarian Natural History Museum, Budapest.

Remarks: The species is well characterized by its heavy sculpture of creases, clavate sensillus, 10 pairs of clavate notogastral setae and angular shoulder without a process. This combination of features readily separates the new species from all other known congeners.

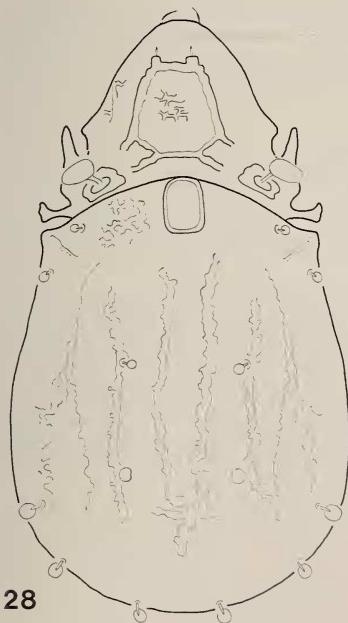
¹ It is most likely that this moniliform appearance is due to secreted matter and consequently may be rather variable.



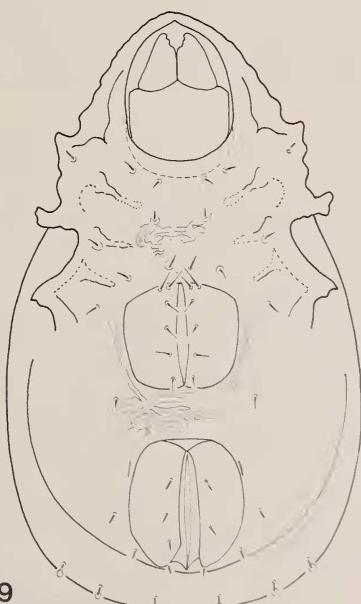
26



27



28



29

FIGS. 26-29.

Scapheremaeus clavisetus sp. n. — 26. dorsal side; 27. ventral side.*Scapheremaeus quadrilineatus* sp. n. — 28. dorsal side; 29. ventral side.

Scapheremaeus quadrilineatus sp. n.

Measurements: Length: 397-435 μ , width: 221-246 μ .

Prodorsum (Fig. 28): Between bothridia robust transversal lath branching laterally, in front of it well developed lamellae connected by a translamella. Cuspis well discernible, lamellar seta short, spiniform are emitted on it. Rostral hair thinner. Sensillus extraordinarily large, clavate, black; stalk short. Interlamellar region with some transversal laths.

Notogaster: Marginal part not sharply separated from medial part. Latter with 4 strong, longitudinal lath-like creases, rest of surface with creases. 10 pairs of clavately thickened notogastral hairs, all originating in frontal part of body, hairs *ps* much smaller than any other hairs. Stalks all conical, apex with a lobiform expanded part.

Ventral (Fig. 29): Entire surface with irregularly running creases. Epimeral setae at base with chitinized rings. 6 pairs of comparatively long, thin genital, 1 pair of agenital, 2 pairs of anal and 3 pairs of adanal hairs present. *iad* pori situated in front third of anal plate parallel with margin. Hairs *ad*₃ in paraanal, *ad*₁ and *ad*₂ in postanal position.

Material examined: Holotypus: Mau-75/46. 15 paratypes: from same locality. Holotypus and 9 paratypes are deposited in the Museum d'Histoire naturelle, Geneva. 6 paratypes (66-PO-76) deposited in the Zoological Department of the Hungarian Natural History Museum, Budapest.

Remarks: The new species is amply described by its 10 pairs of notogastral setae clavate sensillus, similarly clavate notogastral setae of various lengths and the creased surface of notogaster with its 4 longitudinal laths. This combination of features clearly separate the new taxon from any of the so far known related taxa.

Zygoribatula heterotricha Mahunka, 1978

I recently described this species from Dominica. The specimens from Mauritius (Figs. 30, 33-37) are so close to the type-series that it would be unjustified to separate the two series.

It should be mentioned that the shape of the lamella and translamella, considered to be important in separating the taxa of *Zygoribatula*, is rather variable. To illustrate this I give some figures (Figs. 31, 32, 34-37) of the most characteristic varieties. The shape of the sensillus and the peculiar double form of the notogastral setae are identical.

The only noteworthy difference is the body shape of gravid females; the specimens from Dominica had far more eggs than those from Africa, accordingly the notogaster of the former was much broader.

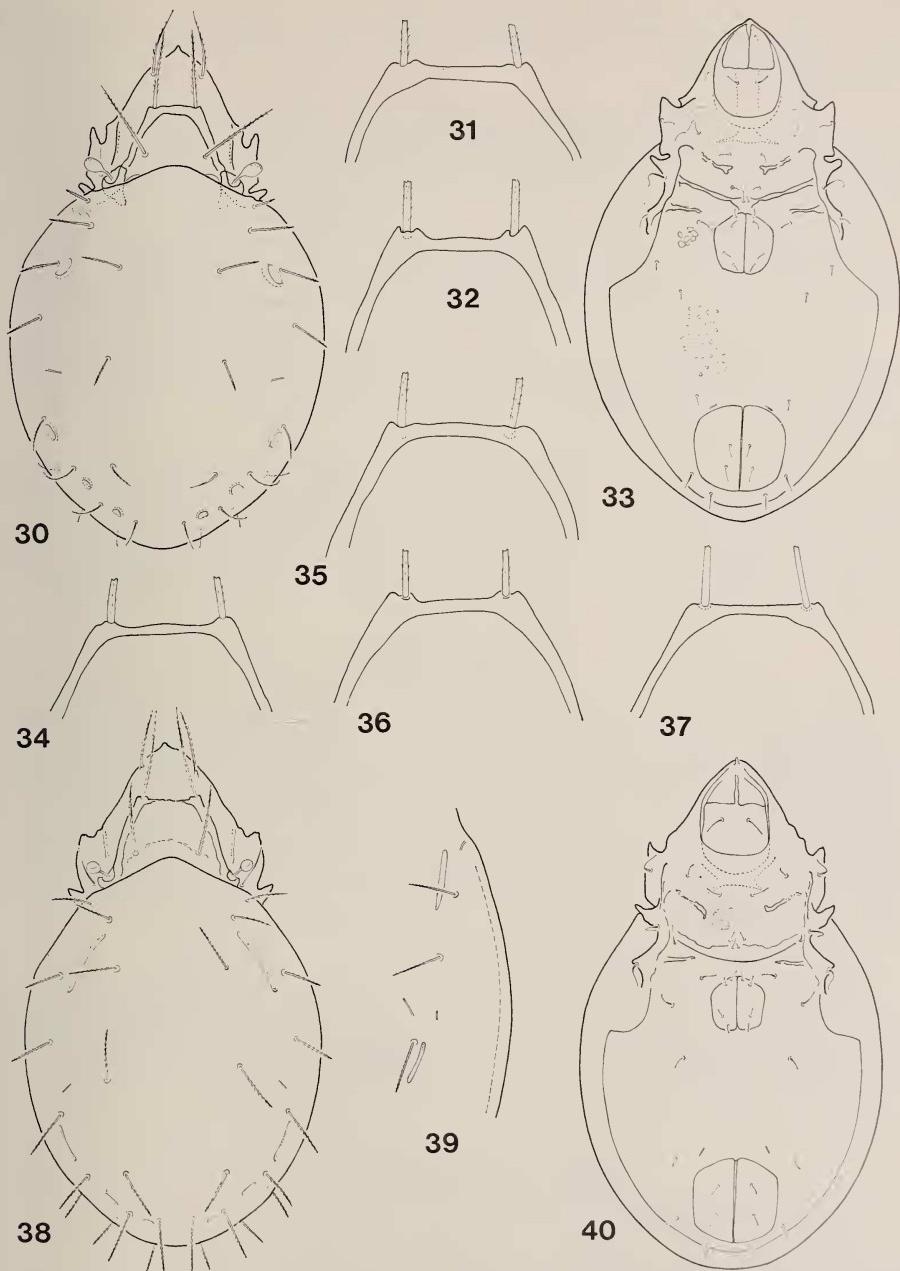
Measurements: Length: 433-502 μ , width: 217-308 μ .

Locality: Mau-75/6.

Zygoribatula schauenbergi sp. n.

Measurements: Length: 461-495 μ , width: 272-297 μ .

Prodorsum (Fig. 38): Apex of rostrum ending in an acute angle. Rostral hairs laterally originating on small tubercles. Lamellae expanding gradually towards apex;



FIGS. 30-40.

Zygoribatula heterotricha Mahunka, 1978.

30. dorsal side 31-32, 34-37; variation of lamella, (32. holotype, 31. paratype from Dominica); 34-37. specimens from Africa; 33. ventral side.

Zygoribatula schauenbergi sp. n.

38. dorsal side; 39. lateral part of notogaster; 40. ventral side.

translamella recognized only as a thin, broken line. Interlamellar hairs connected with a thin, convex chitinized line. Lamellar and interlamellar hairs robust, rigid. Club of sensillus almost round.

Notogaster: Surface smooth. 14 pairs of rigid, distally somewhat attenuating notogastral setae present, all ciliate. Hairs ps_1 - ps_3 shorter than other hairs. Among areae porosae, Aa and A_1 much elongated long, narrow (Fig. 39). A_2 and A_3 also narrow, but less elongated.

Ventral (Fig. 40): Surface of epimeral region with a very fine polygonal sculpture. Sejugal apodeme very robust, ap_2 and ap_3 short; 4 pairs of genital, 1 pair of aggenital, 2 pairs of anal and 3 pairs of adanal hairs present. ad_3 and iad pori in preanal position.

Material examined: Holotypus: Mau-75/43. 17 paratypes: from same locality. Holotypus and 10 paratypes deposited in the Museum d'Histoire naturelle, Geneva. 7 paratypes (67-PO-76) deposited in the Zoological Department of the Hungarian Natural History Museum, Budapest.

Remarks: So far only two such *Zygoribatula* Berlese, 1916 species were known whose Aa and A_1 areae porosae are strongly elongated and ribbon-like. The lamellae of *Z. longiporosa* Hammer, 1963 are as wide as translamella; while the areae porosae Aa and A_1 three times longer than wide; the rostrum of *Z. skrjabini* Bul. et Zachv., 1967 is broad and rounded with the areae porosae Aa and A_1 oval and not so ribbon-like as in the new species.

Flagellobates gen. n.

Diagnosis: Body broad, oval. Lamellae running along margin, lamellar hairs emitted on small cuspis. Sensillus short, clavate, bothridium partly hidden, behind it a sharp chitinized plate present. Pteromorphae moveable, in lateral view approximately triangular in outline. 4 pairs of sacculi, 14 pairs of extraordinarily long, whip-like notogastral hairs present. Epimeral setal formula: 3-1-3-3. Apodemes strongly developed, forming a closed meshwork; even longitudinal sternal apodeme developed. 4 pairs of genital, 1 pair of aggenital, 2 pairs of anal and 3 pairs of adanal hairs present; ad_3 in preanal position. Legs with three claws.

Type-species: *Flagellobates berndhauseri* sp. n.

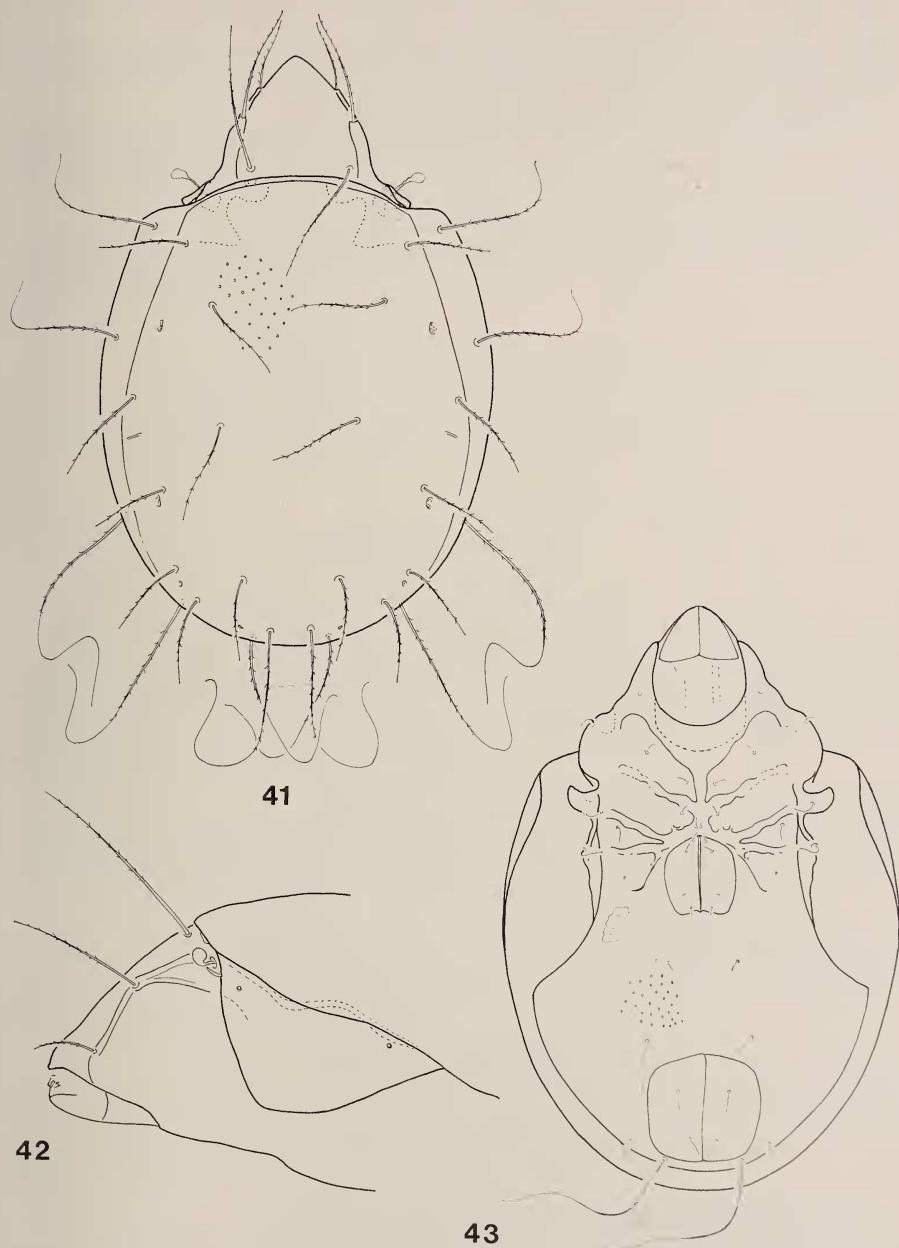
Remarks: The family **Haplozetidae** so far had no such species-group which have 3 claws, 14 pairs of notogastral hairs, 4 pairs of sacculi along with only 4 genital hairs. The new genus comes closest to *Peloribates* Berlese, 1908 but the latter always has 5 genital hairs, and the general habitus is entirely different.

Flagellobates berndhauseri sp. n.

Measurements: Length: 478-551 μ , width: 324-373 μ .

Prodorsum (Fig. 42): Rostrum rounded. Rostral hair emitted at end of prolamella, shorter than lamellar hair. Lamella with broad apex, cuspis with a lamellar hair. Interlamellar hair reaching well beyond rostral apex. Stalk short, bent, club round.

Notogaster (Fig. 41): Surface with obliterated foveolae. 14 pairs of hairs of different lengths, hairs ps especially long together with r_1 . Inner surface of body with short hairs, r_2 and r_3 also comparatively short. 4 pairs of small sacculi present.



FIGS. 41-43.

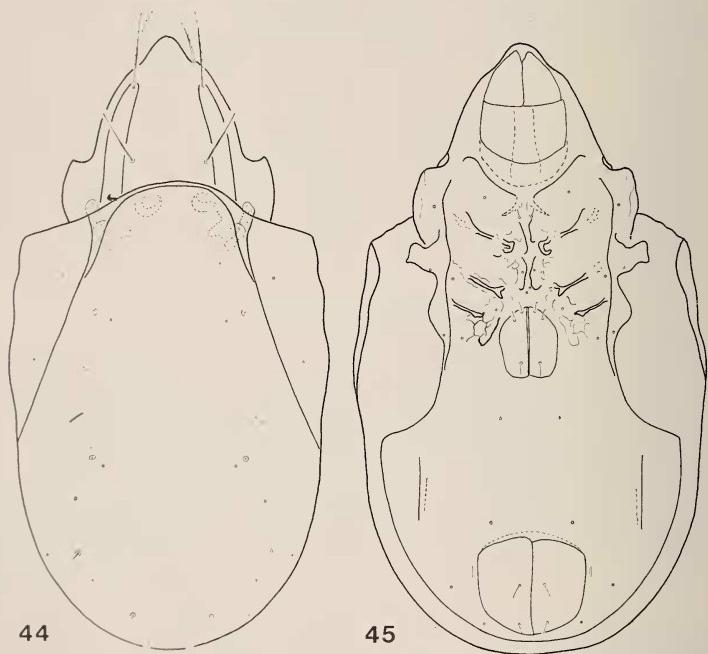
Flagellobates berndhauseri sp. n.

41. dorsal side; 42. lateral part of prodorsum; 43. ventral side.

Ventral (Fig. 43): Apodemes very thick, robust, dark in colour, broad; apodemes 2, sejugal and 3 fused in the middle. Epimeral surfaces small, hairs short. Genital plate with some fine, longitudinal creases, hairs also short. Aggenital and anal hairs similarly short. Adanal hair ad_1 extraordinarily long, whip-like, resembling notogastral setae. Hair ad_2 much shorter, still longer than anal hairs or ad_3 .

Material examined: Holotype: Mau-75/35. 2 paratypes: collected at the same locality. Holotype and 1 paratype are deposited in the Museum d'Histoire naturelle, Geneva. 1 paratype (68-PO-76) deposited in the Zoological Department of the Hungarian Natural History Museum, Budapest.

Remarks: The new species is without relatives among the species of **Haplozetidae**.



FIGS. 44-45.

Tribates cryptus sp. n.

44. dorsal side; 45. ventral side.

Tribates cryptus sp. n.

Measurements: Length: 347-372 μ , width: 176-197 μ .

Prodorsum (Fig. 44): Rostrum narrow, apex rounded. Rostral hair emitted laterally on a small swelling, ciliae long. Lamellae short, comparatively broad, prolamella absent. Lamellar hair, longer than rostral one, originating on cuspis. Interlamellar hair shorter than rostral one. Bothridium and short clavate sensillus partly hidden under steromorpha and dorsosejugal margin, respectively.

Notogaster: Dorsosejugal suture with three arches. Notogastral surface smooth. 4 pairs of sacculi and 10 pairs of alveoli present, at ps_1 a minute hair perceptible.

Ventral (Fig. 45): Apodemes well developed, but not reaching each other in the middle. Epimeral surface with irregular polygonal sculpture. Epimeral hairs minute, in most cases only insertion point perceptible. 3 pairs of genital, 1 pair of aggenital, 3 pairs of adanal alveoli, 2 pairs of anal hair present. Hair ad_3 in preanal position.

Legs: All legs with one claw.

Material examined: Holotypus: Mau-75/69. 13 paratypes: from same locality. Holotypus and 8 paratypes are deposited in the Museum d'Histoire naturelle, Geneva. 5 paratypes (69-PO-76) deposited in the Zoological Department of the Hungarian Natural History Museum, Budapest.

Remarks: The new species may be distinguished from a recently described congener by its general habitus, being narrower and more elongated. Not only bothridium but also half of the club of the sensillus is hidden. The interlamellar hair is much shorter than lamellar one, while the dorsosejugal suture has three arches.

Eupelops incompletus sp. n.

Measurements: Length: 421-472 μ , width: 302-326 μ .

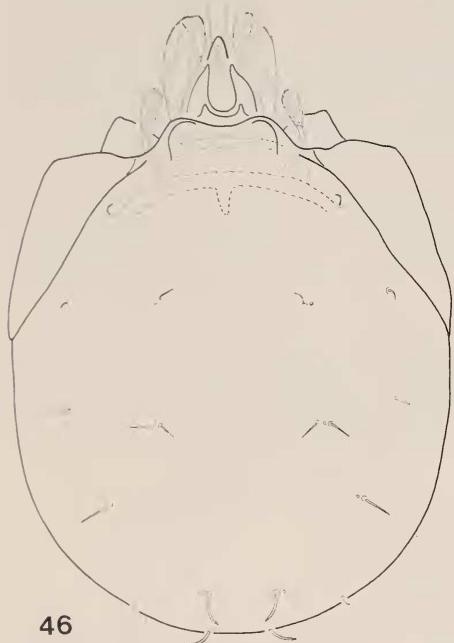
Prodorsum (Fig. 46): Rostrum elongate, conical. Rostral channel long, narrow. Lamellae at basal half strongly protruding. Translamella concavely framing interspace of lamellae. Both rostral and lamellar hairs thin, sparsely ciliate, former one much longer than latter. Interlamellar hairs (Fig. 48) extraordinarily widened, in front wrinkled, densely ciliate. Sensillus clavate with a short stalk.

Notogaster: Large depression present in middle of notogastral process. Surface covered by irregularly distributed secretion. 10 pairs of very short notogastral hairs present, c_2 , la and lm arcuate, thin, hairs lp and h_3 emitted close to each other, both straight and thin, h_1 , h_2 and p_1 thickened, ciliate. Hairs p_2 and p_3 minute (Fig. 47).

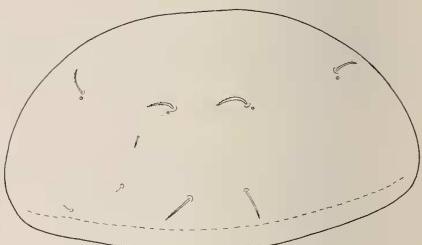
Ventral (Fig. 49): Labium with some very strong, longitudinal creases. Epimeral hairs minute, excepting $3c$. 6 pairs of short genital, 1 pair of aggenital, 2 pairs of anal and 2 pairs of adanal hairs present. Aggenital hairs standing right next to genital plates. All very small, scarcely discernible.

Material examined: Holotypus: Mau-75/46. 24 paratypes: from the same locality; 25 paratypes: Mau-75/69. Holotypus and 29 (14+15) paratypes are deposited in the Museum d'Histoire naturelle, Geneva. 20 (10+10) paratypes (70-POab-76) are deposited in the Zoological Department of the Hungarian Natural History Museum, Budapest.

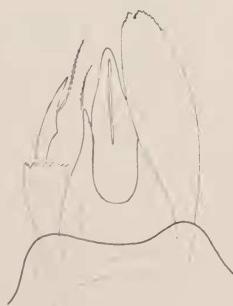
Remarks: So far only a few *Eupelops* species are known from Africa. All of them have 3 pairs of adanal hairs, long notogastral hairs and a different general habitus. The new species may be close to *E. tahitiensis* Hammer, 1972, however, HAMMER did not mention the number of hairs in the anogenital region. On the other hand, hairs p_1 are much smaller than h_1 and the front process of the notogaster is very weakly concave in the middle.



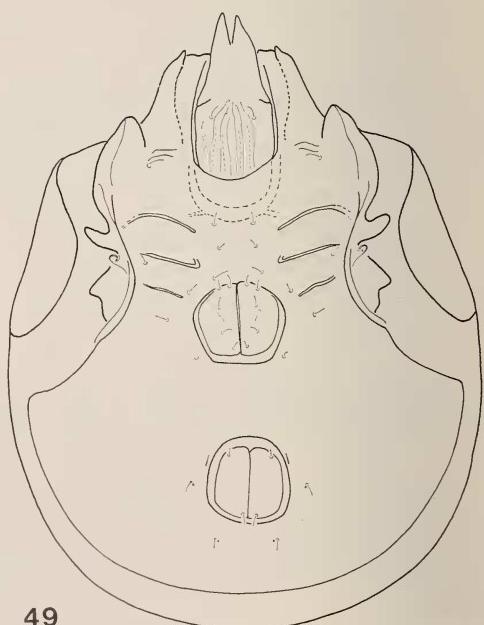
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47



48



49

FIGS. 46-49.

Eupelops incompletus sp. n.

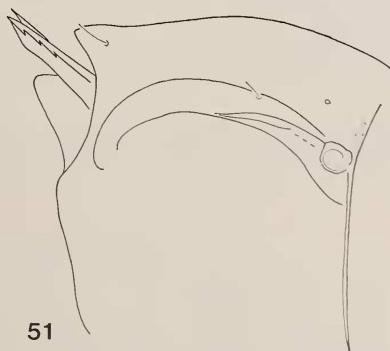
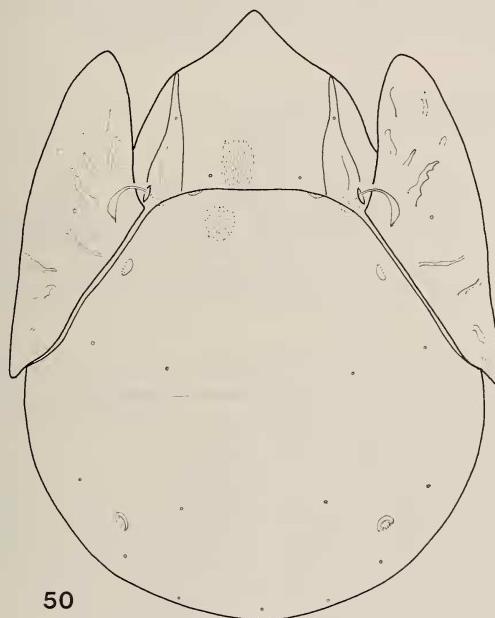
46, dorsal side; 47, end of notogaster; 48, prodorsum; 49, ventral side.

***Porogalumnella africana* sp. n.**

Measurements: Length: 405-446 μ , width: 325-357 μ .

Prodorsum (Fig. 51): Surface covered with densely set, very short creases. Lines *L* and *S* well perceptible, short lamellar hair originating between them. Rostral hair also short, while interlamellar one identifiable only by its insertion point. Sensillus bending laterally, short, half-spindle-shaped, with some cilia.

Notogaster (Fig. 50): Two pairs of areae porosae present. Surface otherwise very densely punctured. 10 pairs of alveoli perceptible. Pteromorpha also punctate, but



FIGS. 50-51.

Porogalumnella africana sp. n.

50. dorsal side; 51. lateral side of prodorsum.

punctures confluent into short rows. Surface of pteromorpha with short, thick, irregular creases, colour different from background.

Ventral: Entire surface also densely punctured. Hairs minute, excepting genital hairs, all identifiable only by their insertional points. 6 pairs of genital, 1 pair of agenital, 2 pairs of anal and 3 pairs of adanal hairs present.

Material examined: Holotypus: Mau-75/35. 5 paratypes: from same locality. The holotypus and 3 paratypes are deposited in the Museum d'Histoire naturelle, Geneva. Two paratypes (71-PO-76) are deposited in the Zoological Department of the Hungarian Natural History Museum, Budapest.

Remarks: Up to the present day this genus included only the type-species: *Porogalumnella quadriporosa* Balogh, 1968, described from New Guinea. This species has a strong polygonal sculpture, and its sensillus is also much larger.

Allogalumna triangulata sp. n.

Measurements: Length: 446-458 μ , width: 313-322 μ .

Prodorsum (Fig. 53): In lateral strongly convex, rostrum strongly narrowing. Line *L* missing, *S* being short, though wide. Rostral hair short, emitted near rostrum. Lamellar and interlamellar hairs identifiable only by their insertional points. Sensillus thin, of uniform thickness throughout, setiform, unilaterally well perceptibly ciliate. In every case directed forward.

Notogaster (Fig. 52): Dorsosejugal suture missing in the middle. Surface with fine puncturation. Pteromorphae near margin with some arcuate lines. Areae porosae characteristic, *Aa* much elongated, *A₁*, *A₂* and *A₃* placed in posterior third of body, unusually close to one another, all three large and round.

Ventral: Apodemes short. Surface of epimeres smooth, only 2 alveoli perceptible on each. Hairs minute; mostly, only their insertional points seen. Genital plate (Fig. 54) with strong, longitudinal lines. 6 pairs of genital, 1 pair of agenital, 2 pairs of anal and 3 pairs of adanal hairs present, the latter represented only by insertion points.

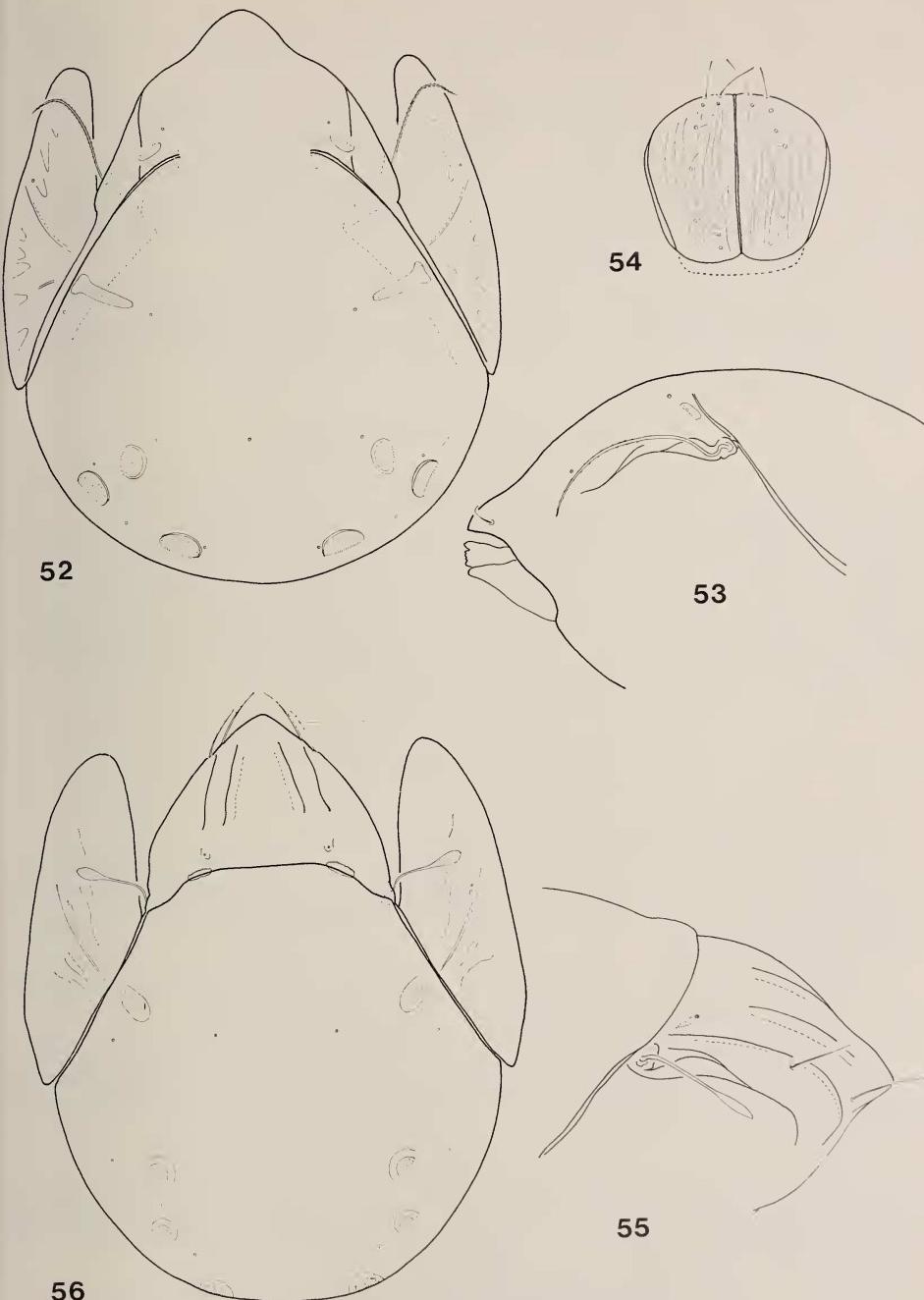
Material examined: Holotypus: Mau-75/7. 6 paratypes: collected at the same locality; 6 paratypes: Mau 75/50. Holotypus and 8 (4+4) paratypes are deposited in the Museum d'Histoire naturelle, Geneva. 4 paratypes (2+2) (72-PO-a-b-76) are deposited in the Zoological Department of the Hungarian Natural History Museum, Budapest.

Remarks: The new species differs from all the other known taxa of *Allogalumna* Grandjean, 1936 by the peculiar shape and position of areae porosae.

Galumna costata sp. n.

Measurements: Length: 535-616 μ , width: 421-469 μ .

Prodorsum (Fig. 55): In the middle 2 parallel, strong costulae present, well perceptibly swelling out of prodorsal surface, even under small magnification. Lines *L* and *S* strong, though not like a costula. Lamellar hair emitted between lines *L* and *S* interlamellar hair minute, but perceptible. Sensillus long, stalk thin, club small, well separated, robust. Surface with some scattered scales.



FIGS. 52-56.

Allogalumna triangulata sp. n.

52. dorsal side; 53. lateral side of prodorsum; 54. genital plates.

Galumna costata sp. n.

55. lateral side of prodorsum; 56. dorsal side.

Notogaster (Fig. 56): Surface smooth and polished, very shiny. All specimens heavily chitinized, dark in colour, almost black, thus insertion points of hairs scarcely, or not at all perceptible. Areae porosae ringed with a chitinized band.

Ventral: Surface of epimeres smooth, hairs minute. 6 pairs of genital, 1 pair of aggenital, 2 pairs of anal and 3 pairs of adanal hairs present, all being minute.

Material examined: Holotypus: Mau-75/35. 15 paratypes: from the same locality. Holotypus and 9 paratypes are deposited in the Museum d'Histoire naturelle, Geneva. 6 (73-PO-76) paratypes are deposited in the Zoological Department of the Hungarian Natural History Museum, Budapest.

Remarks: The courses taken by the lines *L* and *S*, the distribution of the lamellar hairs relegate the new species to the genus of *Galumna* von Heyden, 1826. However none among the so far known species had in fact costulae. This latter feature is unique in the family of *Galumnidae*.

***Galumna flabellifera* Hammer, 1958**

The species was described from Peru. HAMMER also published a description of the species from Tahiti and Fiji Is. AOKI in 1965 described a subspecies *orientalis* from Thailand. Apparently, the African specimens (Figs. 57-58) are closer to the nominate species than to the subspecies, since the distance between the genital and anal plates is twice the length of genital plate and the lamellar hairs are not so small. On the other hand, the club of sensillus is more roundish, with the cilia standing in a ring. In spite of this, it is quite probable that we are dealing with identical forms of the same species.

Locality: Mau-75/6; Mau-75/46; Mau-75/50.

***Galumna mauritii* sp. n.**

Measurements: Length: 402-438 μ , width: 307-342 μ .

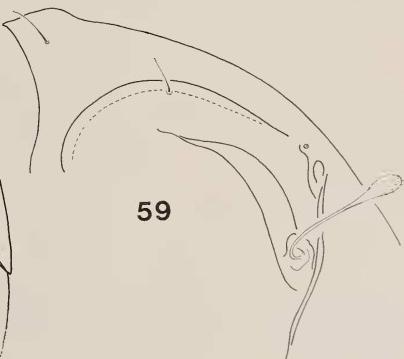
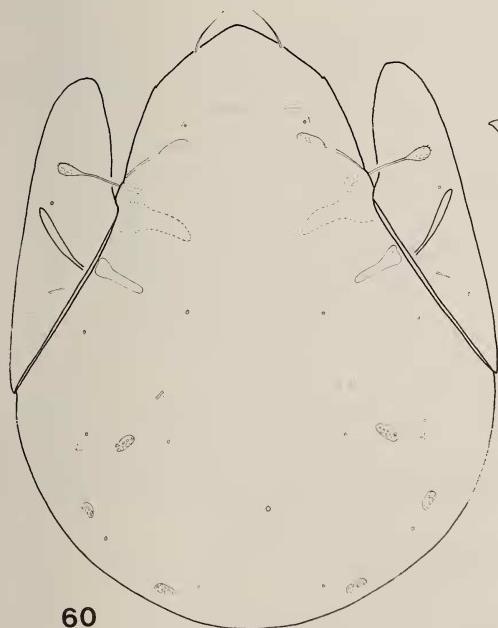
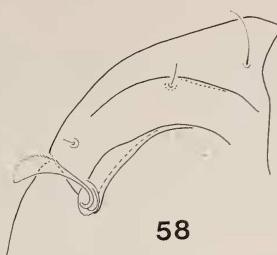
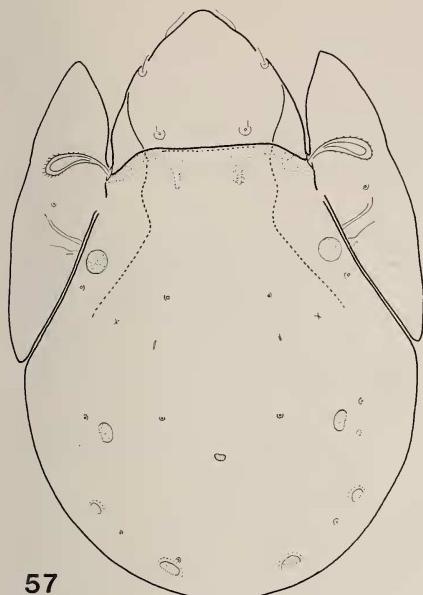
Prodorsum (Fig. 59): Lines *L* and *S* running far from each other, *S* being strong, but comparatively short. Lamellar and rostral hairs short, comparatively of same length. Interlamellar hair minute. Stalk of sensillus long, club rather small, but strongly thickened. Surface ciliate.

Notogaster (Fig. 60): Surface smooth. Among areae porosae *Aa* much elongated like a transversal band, other one, elliptic in outline, heavily chitinized.

Ventral: Epimeres with two pairs of very big alveola. Epimeral hairs minute, of 6 pairs of genital hairs first pair extraordinarily long, others short. Aggenital hairs very thin and short as are anal and 3 pairs of adanal hairs, though *ad*₁ of latter somewhat longer than others.

Material examined: Holotypus: Mau-75/2. 35 paratypes: from the same locality. Holotypus and 20 paratypes are deposited in the Museum d'Histoire naturelle, Geneva. 15 paratypes (74-PO-76) are deposited in the Zoological Department of the Hungarian Natural History Museum, Budapest.

Remarks: The new species may well be characterized by the lack of medial dorso-sejugal suture, the long sensillus, the minute interlamellar hair and the *Aa* resembling a transversal band. This combination of features has so far been unknown in related species.



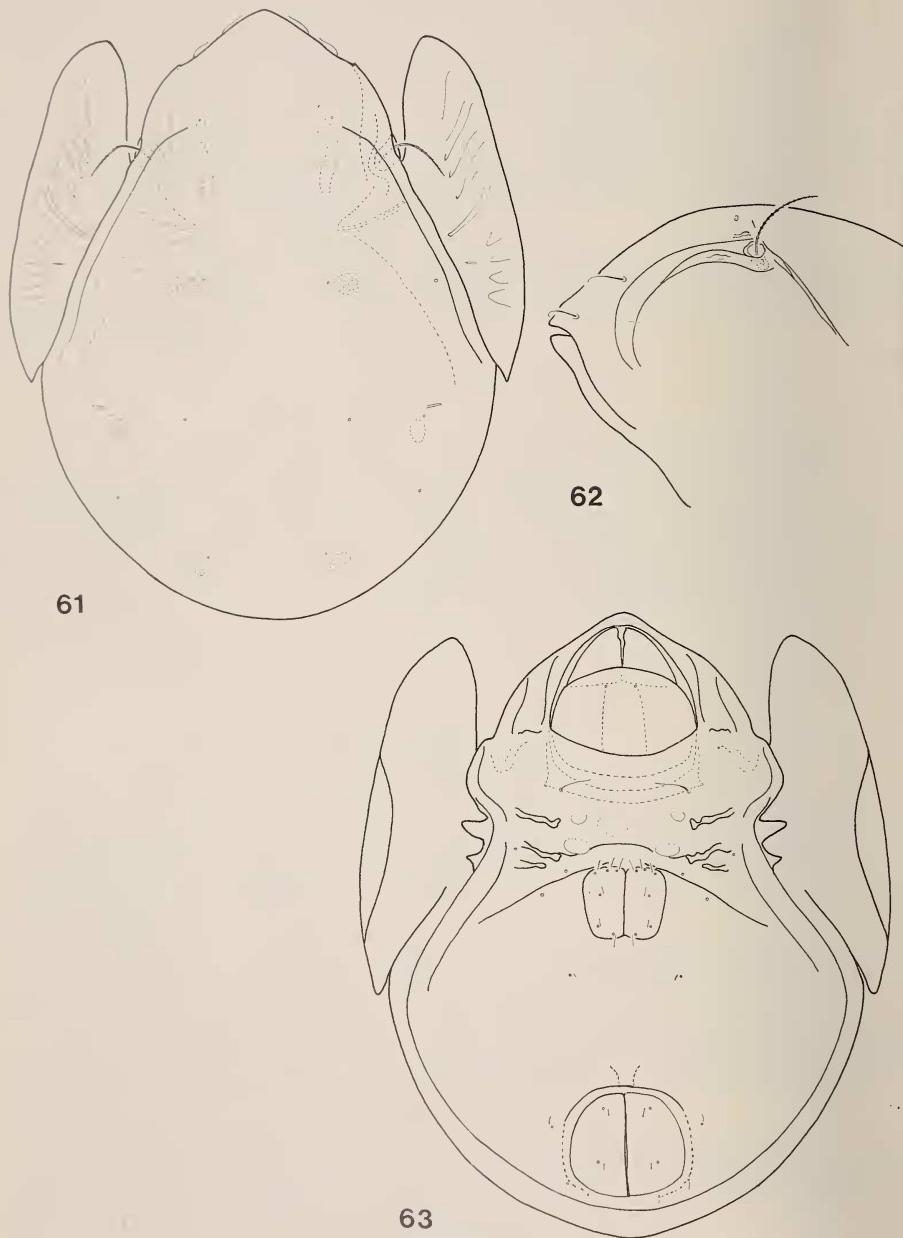
FIGS. 57-60.

Galumna flabellifera Hammer, 1958

57. dorsal side; 58. lateral side of prodorsum.

Galumna mauritii sp. n.

59. lateral side of prodorsum; 60. dorsal side.



FIGS. 61-63.

Pergalumna filifera sp. n.

61. dorsal side; 62. lateral side of prodorsum; 63. ventral side.

Pergalumna filifera sp. n.

Measurements: Length: 439-456 μ , width: 328-335 μ .

Prodorsum (Fig. 62): Lamellar and rostral hairs about same length, interlamellar hair distinguishable only by its insertion point. Sensillus short, thin, with minute cilia.

Notogaster (Fig. 61): Dorsosejugal suture missing. Entire surface of notogaster finely punctured, beside some larger, obliterated alveolae also present. Margin of pteromorpha with high, inward arching creases. Three pairs of areae porosae present, margins obliterated, *Aa* largest of all, oval. 10 pairs of alveoli perceptible.

Ventral (Fig. 63): Entire surface punctured. Epimeres with 2 pairs of larger foveola present. Epimeral hair *la* comparatively long, others represented only by their insertion points. In front of genital plate a broad chitinized bridge present, clearly perceptible owing to its darker colour. 6 pairs of genital, 1 pair of aggenital, 2 pairs of anal and 3 pairs of adanal hairs present.

Material examined: Holotypus: Mau-75/7. 6 paratypes: from the same locality; 11 paratypes: Mau-75/50. Holotypus and 10 (3+7) paratypes are deposited in the Museum d'Histoire naturelle, Geneva. 7 (3+4) paratypes (75-POa-b-76) are deposited in the Zoological Department of the Hungarian Natural History Museum, Budapest.

Remarks: The new species can be placed in the species-group of the genus *Pergalumna* Grandjean, 1936, which may be characterized by the following combination of features:

1. Dorsosejugal suture missing in the middle.
2. Interlamellar hair missing, or minute.
3. Sensillus filiform, short, arcuate laterally, very finely ciliate.

The following species belong in this group:

- P. conspicua* Balogh, 1962
- P. bimaculata* Hammer, 1972
- P. bifissurata* Hammer, 1973

The new species differs from all others mainly by its smaller dimensions (all other species longer than 700 μ). It also differs from *P. bifissurata* in that the latter lacks rostral hair, but that a minute *in* hair is present. *P. bimaculata* has longer genital hairs but lacks a chitinized bridge in front of the genital plate.

Pergalumna mauritii sp. n.

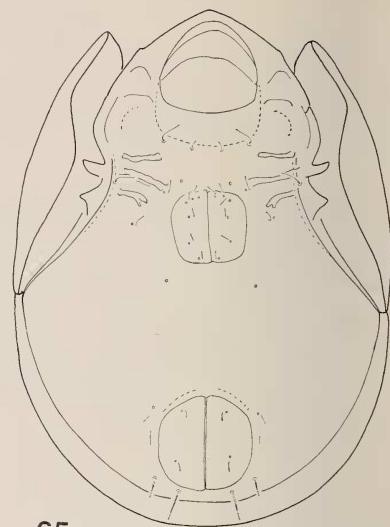
Measurements: Length: 567-591 μ , width: 453-470 μ .

Prodorsum (Fig. 66): In lateral view steeply convex. Hairs well discernible, rostral one being the shortest, lamellar one somewhat shorter than interlamellar one. All finely ciliate. Sensillus thin, flagelliform, bending far back, very finely ciliate.

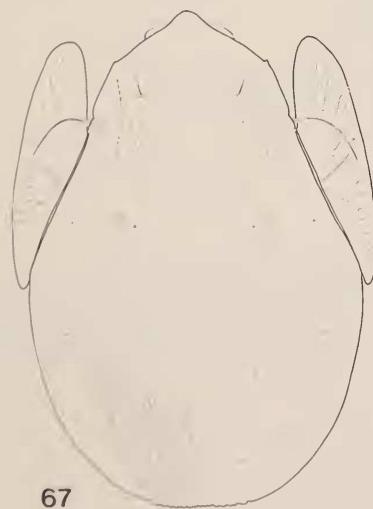
Notogaster (Fig. 64): Dorsosejugal suture medially missing. Body surface densely but finely punctured. 3 pairs of areae porosae present, no significant difference in size



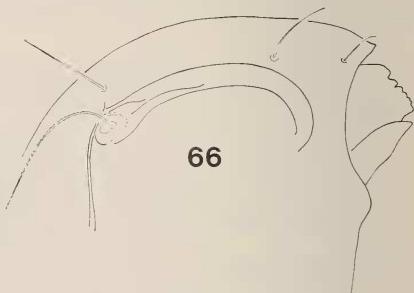
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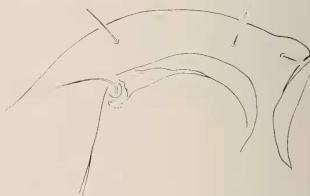
65



67



66



68

FIGS. 64-68.

Pergalumna mauritii sp. n.

64. dorsal side; 65. ventral side; 66. lateral side of prodorsum.

Pergalumna strigulata sp. n.

67. dorsal side; 68. lateral side of prodorsum.

among them, all round. Aa_s unusually closely set to one another, removed from body margin; distance between them not more than same from one to body margin.

Ventral (Fig. 65): Entire surface, including genital and anal plates, densely, clearly punctured. Apodemes short. Epimeral hairs $1a$ and $2b$ significantly longer than others. Genital and anal hairs minute, ad_3 minute originating beside frontal part of anal plate; ad_1 and ad_2 in postanal position their length difference is great: ad_1 twice the length of ad_2 .

Material examined: Holotypus: Mau-75/7. 2 paratypes: from the same locality; 9 paratypes: Mau-75/50. Holotypus and 6 (1+5) paratypes are deposited in the Museum d'Histoire naturelle, Geneva. 5 (1+4) paratypes (76-POa-b-76) are deposited in the Zoological Department of the Hungarian Natural History Museum, Budapest.

Remarks: Owing to its thin, ciliate, backward bending sensillus, its medially missing dorsosejugal suture and its long interlamellar hair, the new species is close to *P. frater* Bal., 1960, *P. longisetosa* Bal., 1960 and *P. remota* (Hammer, 1968). But the peculiar position of Aa area porosa may readily separate the new species from the above three species and from all the other *Pergalumna* Grandjean, 1936 species.

Pergalumna strigulata sp. n.

Measurements: Length: 551-583 μ , width: 389-451 μ .

Prodorsum (Fig. 68): Surface with densely spaced, longitudinally running furrows, ridges between them only weakly elevated, difficult to see especially on dark coloured specimens. Rostral hair shortest of all, interlamellar one being the longest. Latter well discernibly ciliate. Sensillus thin, setiform, entirely smooth.

Notogaster (Fig. 67): Surface with same sculpture as on prodorsum, but near body end sculpture heavier, while along body margin some deeper furrows also present. Surface of pteromorpha densely punctured, laterally with some radially arranged, darkly coloured irregular creases. Areae porosae difficult to observe, no margin seen, obliterated, only some heavier puncturation perceptible.

Ventral: Epimeral hairs short, surface smooth, at most with 1 or 2 pairs of alveoli present. Genital, aggenital, anal and adanal hairs very small, ad_1 longer than ad_2 and ad_3 .

Material examined: Holotypus: Mau-75/35. 10 paratypes: from the same locality. Holotypus and 6 paratypes are deposited in the Museum d'Histoire naturelle, Geneva. 4 paratypes (77-PO-76) are deposited in the Zoological Department of the Hungarian Natural History Museum, Budapest.

Remarks: A similar pattern in sculpture is known in *Galumna pterolineata* Hammer, 1972, described from Tahiti. However, the two genera readily separate the two taxa. Among *Pergalumna* species no such sculpture has been known to occur.

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